U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY.—CIRCULAR 155.

A. D. MELVIN, CHIEF OF BUREAU.

MYCOTIC LYMPHANGITIS OF HORSES.[a]

By JOHN R. MOHLER, V. M. D.,
Chief of the Pathological Division.

This disease has been known as epizootic lymphangitis, otherwise pseudo-farcy, or Japanese farcy; it is a chronic contagious disease, particularly of equines, caused by a specific organism, the *Saccharomyces farciminosus*, and characterized by a suppurative inflammation of the subcutaneous lymph vessels and the neighboring lymph glands. Owing to the fact that this affection does not spread as an epizootic and that its causal factor is a yeastlike fungus, the name mycotic instead of epizootic lymphangitis is suggested. This disease was first described by Italian and French veterinarians, and the specific organism was discovered by Rivolta in 1873. The presence of the disease in the United States was first observed by Pearson in Pennsylvania in 1907, although it is probable that it has existed in various parts of this country for many years. More recently its presence was definitely established in Ohio, Iowa, California, and North Dakota, and there is a probability of its existence in Indiana and several Western States. The disease is also present in the Philippine Islands, Hawaiian Islands, and Porto Rico.

BACTERIOLOGY.

The *Saccharomyces farciminosus* forms slightly ovoid bodies 3 to 5 microns long and 2.4 to 3.6 microns broad, which are somewhat pointed toward the poles and have a sharp double contour. They have more or less of a homogeneous content and grow by budding. This characteristic can be especially well observed in old growths on culture media. Their staining with the ordinary stains is quite unsatisfactory; they may, however, be readily recognized in fresh smear preparations or in the hanging drop of a small quantity of the suspected pus, where the above-described bodies can be distinctly noticed.

A satisfactory method of staining the organism is the Claudius method, which is as follows:

1. Stain with 1 per cent aqueous solution of methyl violet for two minutes.
2. Wash in water.

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[a] Reprinted from the Twenty-fifth Annual Report of the Bureau of Animal Industry (1908).

3. Place in a half saturated solution of picric acid for one to two minutes.
4. Decolorize with chloroform or clove oil.
5. Treat with xylol.
6. Mount in Canada balsam.

The organisms grow very slowly in the various culture media. It requires about ten days before vegetation is noticed on agar in the form of grayish-white granules, which gradually grow to larger colonies, appearing considerably elevated and having a wrinkled surface. They also grow in bouillon, in which a white flaky deposit makes its appearance after fifteen or eighteen days. In taking cultures it is advisable to open a fluctuating abscess, over which the skin should be shaved and well cleaned with bichlorid solution and alcohol. The abscess should be opened with a sterilized scalpel, and culture media may then be inoculated in the usual way. In case of a mixed infection, the organism may be isolated by plating.

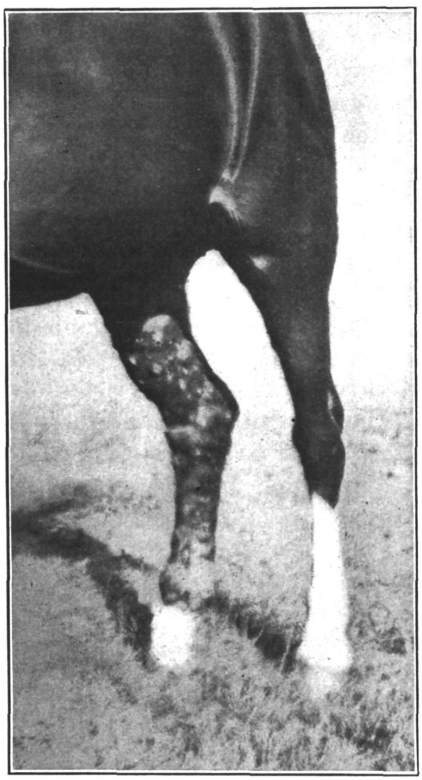

FIG. 1.—Mycotic lymphangitis in North Dakota mare.

The period of incubation varies greatly, extending from three weeks to four months, or even longer. In artificial inoculations with pus through wounds in the skin, inflammation and swelling of the lymph vessels may be noticed in twenty to sixty days, and these vessels show in their course a development of hard nodules, from which abscesses form.

The natural infection is without doubt caused through superficial wounds, such as galls, barbed-wire cuts, or through various stable utensils, harness, bandages, insects, etc. Solipeds are mostly susceptible, but cattle may also be infected.

SYMPTOMS.

The inflammation of the lymph vessels is usually first observed on the extremities, especially on one or both hind legs (fig. 1); it may also appear on the fore legs, shoulder, or neck (figs. 2 and 3), and more rarely on the rump, udder, and scrotum. The lesions as a rule

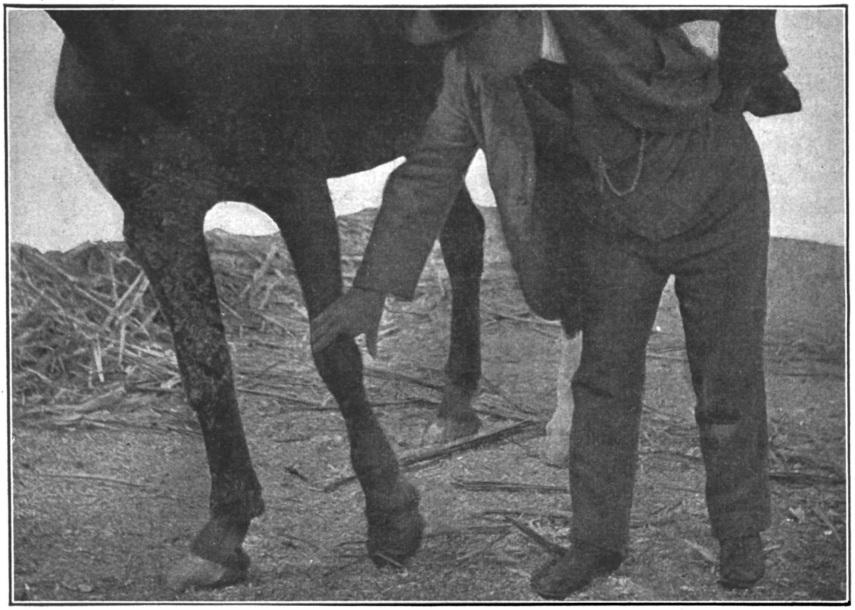

FIG. 2.—Mycotic lymphangitis on foreleg and shoulder of horse.

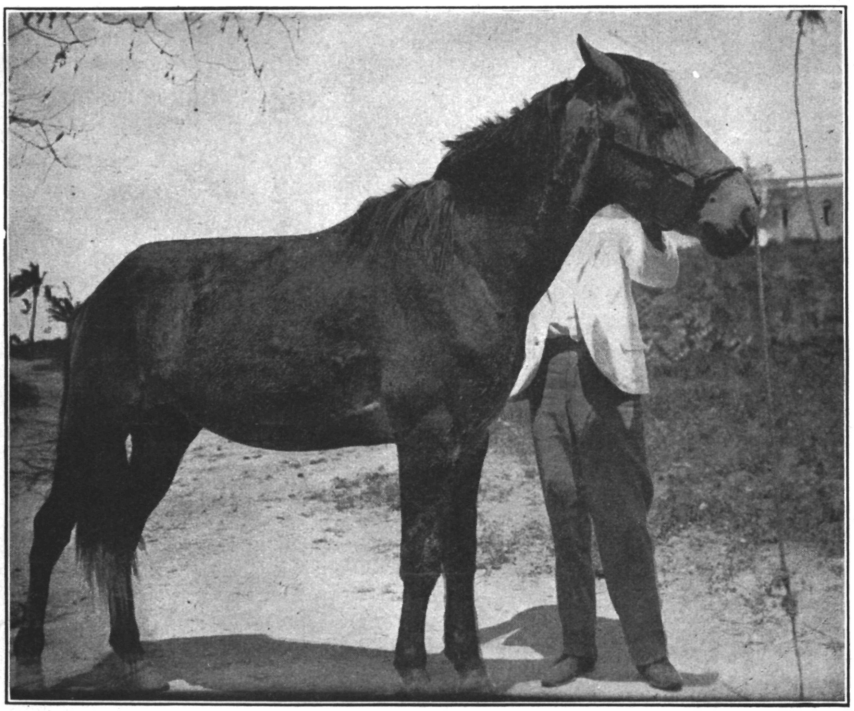

FIG. 3.—Mycotic lymphangitis in Porto Rican pony.

develop in the tissue adjacent to the place of inoculation. In the early stages of the disease the lymph vessels appear very hard and thickened, and along their course hard nodules develop, ranging in size from a pea to a hen's egg. Later these nodules soften, burst spontaneously, and discharge a thick yellowish pus. The surface of the resulting ulcers or abscess cavities soon fills up with exuberant granulation which protrude beyond the surface of the skin, giving a fungoid appearance. The affected extremities are considerably enlarged, similar to cases of simple lymphangitis. In rare cases the mucous membrane of the nostrils may also become affected, showing yellowish flat elevations and ulcerations, and these may extend by metastasis to internal organs. (See fig. 4.) In cases where the mucous membrane is affected the submaxillary lymph gland may also become enlarged and suppurate.

The constitutional symptoms accompanying this disease are not very marked or may be altogether absent. There is usually only a very slight fever, which seldom runs over 102° F. The appetite is not impaired except in the advanced cases.

LESIONS.

The anatomical changes are most marked in the skin and the subcutaneous tissues. They may become 2 to 3 inches thick and indurated as the result of fibrous-tissue formation, due to the inflammation present. On the baconlike cut surface suppurative areas and granulating sores may be noticed of various sizes, also enlarged lymph vessels filled with clotted lymph mixed with pus. The neighboring lymph glands are usually enlarged and frequently contain suppurating foci. Rarely the internal organs may show metastatic abscesses.

FIG. 4.—Mycotic lymphangitis in Philippine pony.

DIAGNOSIS.

The diagnosis is based on the characteristic appearance of the ulcerations, which show exuberant granulation of a bright-red color, inverted edges, and a thick, creamy, glutinous discharge. These manifestations differentiate the disease from glanders, in which the ulcers

are craterlike, do contain exuberant granulations, and the discharge is of a viscous, oily character. The submaxillary and other nodes as well as the corded lymphatics in glanders are more firmly attached to the adjacent tissues, and are therefore less movable. In some chronic cases of mycotic lymphangitis, however, the lesions may colsely resemble those of farcy, and in these cases the microscopical examination of the pus will disclose the nature of the affection. In the pus the saccharomyces can be easily seen in the unstained specimen and is recognized by its size, shape, and highly refractory double outline. Furthermore, the injection of mallein in cases of mycotic lymphangitis will be atttended with negative results.

TREATMENT.

Treatment consists at the onset of the disease in entire extirpation of the nodules, lymph vessels, and neighboring lymph glands in case the lesions are localized. In cases where the nodules have formed abscesses their opening is recommended, followed by the application of the actual cautery or a 1 to 250 solution of bichlorid of mercury. It must be borne in mind that the organism is highly resistant to almost every antiseptic, and the best results will be obtained from the application of a solution of a strong antiseptic following the opening of the lesions.

In the most favorable cases recovery results in from five to seven weeks; as a rule, however, it requires several months.

PROPHYLAXIS.

In order to prevent the spreading of the disease the affected animals should be isolated, the products of the disease should be destroyed, and the stable should be disinfected with very strong liquid disinfectants in consideration of the great resistance of the causative organism.

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